

16805 U.S. PTO  
121103

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|   |                     |  |
|---|---------------------|--|
| <b>UTILITY<br/>PATENT APPLICATION<br/>TRANSMITTAL</b><br><small>(Only for new nonprovisional applications under 37 CFR 1.53(b))</small> | Attorney Docket No. | 62004-1851   |
|   | First Inventor      | Mule, et al.   |
|   | Title               | BACKPLANE, PRINTED WIRING BOARD, AND/OR MULTI-CHIP MODULE-LEVEL OPTICAL INTERCONNECT LAYER HAVING EMBEDDED AIR-GAP TECHNOLOGIES AND METHODS OF FABRICATION |
| Express Mail Label No.  |                     | EL 993859156 US  |

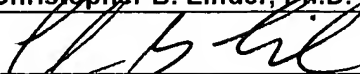
| APPLICATION ELEMENTS<br><small>See MPEP Chapter 600 concerning utility patent application contents</small> |   | ADDRESS TO:<br><small>Mail Stop Patent Application<br/>Commissioner for Patents<br/>P.O. Box 1450<br/>Alexandria, VA 22313-1450</small> |   |
|--|---|---|---|
| 1.   | <input checked="" type="checkbox"/> Fee Transmittal Form (e.g., PTO/SB/17)<br><small>(Submit an original, and a duplicate for fee processing)</small>   | 7.  | <input type="checkbox"/> CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)  |
| 2.   | <input type="checkbox"/> Applicant claims small entity status. See CFR 1.27   | 8.  | Nucleotide and/or Amino Acid Sequence Submission<br><small>(if applicable, all necessary)</small>   |
| 3.   | <input checked="" type="checkbox"/> Specification<br><small>(preferred arrangement set forth below)</small> [Total Pages <b>28</b> ]  | a.  | <input type="checkbox"/> Computer Readable Copy (CRF)   |
|  | <ul style="list-style-type: none"><li>- Descriptive title of the invention</li><li>- Cross Reference to Related Applications</li><li>- Statement Regarding Fed. Sponsored R&amp;D</li><li>- Reference to sequence listing, a table, or a computer program listing appendix</li><li>- Background of the Invention</li><li>- Brief Summary of the Invention</li><li>- Brief Description of the Drawings (if filed)</li><li>- Detailed Description</li><li>- Claim(s)</li><li>- Abstract of the Disclosure</li></ul> | b.  | Specification Sequence Listing on: <ul style="list-style-type: none"><li>i. <input type="checkbox"/> CD-ROM or CD-R (2 copies); or</li><li>ii. <input type="checkbox"/> Paper</li></ul> |
| 4.   | <input checked="" type="checkbox"/> Drawing(s) (35 USC 113) [Total Sheets <b>10</b> ]   | c.  | <input type="checkbox"/> Statements verifying identity of above copies  |
| 5.   | Oath or Declaration [Total Pages <b>4</b> ]   | <b>ACCOMPANYING APPLICATION PARTS</b>   |   |
| a.   | <input type="checkbox"/> Newly Executed (original or copy)  | 9.  | <input checked="" type="checkbox"/> Assignment Papers (cover sheet & Documents(s))  |
| b.   | <input checked="" type="checkbox"/> Copy from a prior application (37 CFR §1.63(d))<br><small>(for continuation/divisional with Box 18 completed)</small>   | 10.   | <input type="checkbox"/> 37 CFR 3.73(b) Statement <input type="checkbox"/> Power of Attorney<br><small>(when there is an assignee)</small>  |
| i.   | <input type="checkbox"/> <b>DELETION OF INVENTOR(S)</b><br><small>Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).</small>   | 11.   | <input type="checkbox"/> English Translation Document (if applicable)   |
| 6.   | <input type="checkbox"/> Application Data Sheet. See 37 CFR 1.76  | 12.   | <input checked="" type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <b>68</b> Copies of IDS Citations   |
|  |   | 13.   | <input type="checkbox"/> Preliminary Amendment  |
|  |   | 14.   | <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503)<br><small>(Should be specifically itemized)</small>  |
|  |   | 15.   | <input type="checkbox"/> Certified Copy of Priority Document(s)<br><small>(if foreign priority is claimed)</small>  |
|  |   | 16.   | <input type="checkbox"/> Nonpublication Request under 35 U.S.C. 122(b)(2)(B)(i).<br><small>Applicant must attach form PTO/SB/35 or its equivalent.</small>                              |
|  |   | 17.   | <input type="checkbox"/> Other:   |

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No: 10/135,314.

Prior application information: Examiner Phan T. H. Palmer Group / Art Unit: 2874

For CONTINUATION OR DIVISIONAL APPS only: the entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. This incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

|  |   |                                   |   |
|--|---|-----------------------------------|---|
| 18. CORRESPONDENCE ADDRESS                           |   |                                   |   |
| <input checked="" type="checkbox"/> Customer Number: | <b>24504</b>  |                                   | OR <input type="checkbox"/> Correspondence address below: |
| NAME   | Christopher B. Linder, Ph.D.<br>Thomas, Kayden, Horstemeyer & Risley, L.L.P.        |                                   |   |
| ADDRESS  | 100 Galleria Parkway<br>Suite 1750  |                                   |   |
| CITY   | Atlanta   | STATE                             | Georgia   |
| COUNTRY  | U.S.A.  | TELEPHONE                         | 770-933-9500  |
|  |   | ZIP CODE                          | 30339-5948  |
|  |   | FAX                               | 770-951-0933  |
| Name (Print/Type)                                    | Christopher B. Linder, Ph.D.  | Registration No. (Attorney/Agent) | 47,751  |
| Signature  |  | Date                              | 12/11/03  |

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PTO/SB/17 (10-03)  
Approved for use through 10/31/2002. OMB 0651-0032  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE**FEE TRANSMITTAL  
for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revisions.

☐ Applicant claims small entity status. See 37 CFR 1.27TOTAL AMOUNT OF PAYMENT (\$)**896.00****Complete If Known**

|                      |                                    |
|----------------------|------------------------------------|
| Application Number   | To be assigned                     |
| Filing Date          | December 11, 2003 (4/29/02 Parent) |
| First Named Inventor | Mule, et al.                       |
| Examiner Name        | Phan T.H. Palmer (Parent)          |
| Group / Art Unit     | 2874 (Parent)                      |
| Attorney Docket No.  | 62004-1851                         |

**METHOD OF PAYMENT (check all that apply)**
☐ Check ☒ Credit Card ☐ Money Order ☐ Other ☐ None
☒ Deposit Account

Deposit Account Number

**20-0778**

Deposit Account Name

**Thomas, Kayden, Horstemeyer Risley, L.L.P.**

The Commissioner is authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☒ Credit any overpayments  
☒ Charge any additional fee(s) during the pendency of this application  
☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account
**FEE CALCULATION****1. BASIC FILING FEE**

| Large Entity        |          | Small Entity |          | Fee Description        | Fee Paid          |
|---------------------|----------|--------------|----------|------------------------|-------------------|
| Fee Code            | Fee (\$) | Fee Code     | Fee (\$) |                        |                   |
| 1001                | 770      | 2001         | 385      | Utility Filing Fee     | 770.00            |
| 1002                | 340      | 2002         | 170      | Design Filing Fee      |                   |
| 1003                | 530      | 2003         | 265      | Plant Filing Fee       |                   |
| 1004                | 770      | 2004         | 385      | Reissue Filing Fee     |                   |
| 1005                | 160      | 2005         | 80       | Provisional Filing Fee |                   |
| <b>SUBTOTAL (1)</b> |          |              |          |                        | <b>(\$770.00)</b> |

**2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE**

|                    | Extra Claims | Fee From Below | Fee Paid        |
|--------------------|--------------|----------------|-----------------|
| Total Claims       | 19           | - 20** = 0     | X 18.00 = 0     |
| Independent Claims | 4            | - 3** = 1      | X 86.00 = 86.00 |
| Multiple Dependent |              |                | 145.00 = 0      |

| Large Entity        |          | Small Entity |          | Fee Description   | Fee Paid         |
|---------------------|----------|--------------|----------|---|------------------|
| Fee Code            | Fee (\$) | Fee Code     | Fee (\$) |   |                  |
| 1202                | 18       | 2202         | 9        | Claims in excess of 20                                    |                  |
| 1201                | 86       | 2201         | 43       | Independent claims in excess of 3                         |                  |
| 1203                | 290      | 2203         | 145      | Multiple dependent claim, if not paid                     |                  |
| 1204                | 86       | 2204         | 43       | **Reissue independent claims over original patent         |                  |
| 1205                | 18       | 2205         | 9        | **Reissue claims in excess of 20 and over original patent |                  |
| <b>SUBTOTAL (2)</b> |          |              |          |   | <b>(\$86.00)</b> |

\*\*or number previously paid, if greater; For Reissues, see above

**FEES CALCULATION (continued)****3. ADDITIONAL FEES**

| Large Entity        |          | Small Entity |          | Fee Description  | Fee Paid         |
|---------------------|----------|--------------|----------|--|------------------|
| Fee Code            | Fee (\$) | Fee Code     | Fee (\$) |  |                  |
| 1051                | 130      | 2051         | 65       | Surcharge-late filing fee or oath  |                  |
| 1052                | 50       | 2052         | 25       | Surcharge-late provisional filing fee or cover sheet                       |                  |
| 1053                | 130      | 1053         | 130      | Non-English specification  |                  |
| 1812                | 2,520    | 1812         | 2,520    | For filing a request for ex parte reexamination                            |                  |
| 1804                | 920*     | 1804         | 920*     | Requesting publication of SIR prior to Examiner action                     |                  |
| 1805                | 1,840*   | 1805         | 1,840*   | Requesting publication of SIR after Examiner action                        |                  |
| 1251                | 110      | 2251         | 55       | Extension for reply within first month                                     |                  |
| 1252                | 420      | 2252         | 210      | Extension for reply within second month                                    |                  |
| 1253                | 950      | 2253         | 475      | Extension for reply within third month                                     |                  |
| 1254                | 1,480    | 2254         | 740      | Extension for reply within fourth month                                    |                  |
| 1255                | 2,010    | 2255         | 1,005    | Extension for reply within fifth month                                     |                  |
| 1401                | 330      | 2401         | 165      | Notice of Appeal   |                  |
| 1402                | 330      | 2402         | 165      | Filing a brief in support of an appeal                                     |                  |
| 1403                | 290      | 2403         | 145      | Request for oral hearing   |                  |
| 1451                | 1,510    | 1451         | 1,510    | Petition to institute a public use proceeding                              |                  |
| 1452                | 110      | 2452         | 55       | Petition to revive-unavoidable   |                  |
| 1453                | 1,330    | 2453         | 655      | Petition to revive-unintentional   |                  |
| 1501                | 1,330    | 2501         | 665      | Utility issue fee (or reissue)   |                  |
| 1502                | 480      | 2502         | 240      | Design issue fee   |                  |
| 1503                | 640      | 2503         | 320      | Plant issue fee  |                  |
| 1460                | 130      | 1460         | 130      | Petitions to the Commissioner  |                  |
| 1807                | 50       | 1807         | 50       | Processing fee for provisional application                                 |                  |
| 1806                | 180      | 1806         | 180      | Submission of Information Disclosure Stmt                                  |                  |
| 8021                | 40       | 8021         | 40       | Recording each patent assignment per property (times number of properties) | 40.00            |
| 1809                | 770      | 2809         | 385      | Filing a submission after final rejection (37 CFR § 1.129(a))              |                  |
| 1810                | 770      | 2810         | 385      | For each add. invention to be examined (37 CFR 1.129(b))                   |                  |
| 1801                | 770      | 2801         | 385      | Request for Continued Examination (RCE)                                    |                  |
| 1802                | 900      | 1802         | 900      | Request for expedited exam. of a design application                        |                  |
| Other fee (specify) |          |              |          |  |                  |
| <b>SUBTOTAL (3)</b> |          |              |          |  | <b>(\$40.00)</b> |

\*Reduced by Basic Filing Fee Paid

**SUBMITTED BY**

Complete (if applicable)

Typed or Printed Name  
Signature**Christopher B. Linder, Ph.D.**Registration No. **47,751**

Telephone Number

**770-933-9500**

Date

**12/11/03****WARNING: Information on this form may become public. Credit Card information should not be included on this form. Provide credit card information and authorization on PTO-2038**

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 37 USC 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: **Mule, et al.**

For: **BACKPLANE, PRINTED WIRING BOARD, AND/OR MULTI-CHIP MODULE-  
LEVEL OPTICAL INTERCONNECT LAYER HAVING EMBEDDED AIR-GAP  
TECHNOLOGIES AND METHODS OF FABRICATION**

**CERTIFICATE OF EXPRESS MAIL**

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

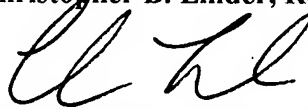
Enclosed for filing in the above case are the following documents:

Return Postcard  
Utility Patent Application Transmittal Page  
Fee Transmittal Page  
Utility Patent Application Consisting Of:  
22 Pages of Specification  
6 Pages of Claims (Claims 1-1)  
1 Page of Abstract  
10 Pages of Formal Drawings (Fig(s). 1A-9I)  
Preliminary Remarks  
Declaration (copy, executed)  
Assignment & Recordation Cover Sheet  
Information Disclosure Statement, Form PTO 1449 and 68 References  
Credit Card Authorization in the Amount of \$896.00

Further, the Commissioner is authorized to charge Deposit Account No. 20-0778 for any additional fees required. The Commissioner is requested to credit any excess fee paid to Deposit Account No. 20-0778.

Respectfully submitted,

**Christopher B. Linder, Reg. No. 47,751**



**THOMAS, KAYDEN, HORSTEMEYER  
& RISLEY, L.L.P.**

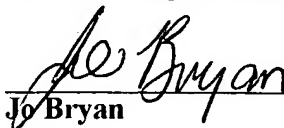
100 Galleria Parkway, N.W.  
Suite 1750  
Atlanta, Georgia 30339-5948

Our Docket No: **62004-1851**

I hereby certify that all correspondence listed above are being deposited for delivery to the above addressee, with the United States Postal Service "**EXPRESS MAIL POST OFFICE TO ADDRESSEE**" service under 37 CFR §1.10 on the date indicated below:

The envelope has been given U.S. Postal Service "Express Mail Post Office To Addressee" Package # **EL 993859156 US**.

Date: Dec. 11, 2003

  
Jo Bryan